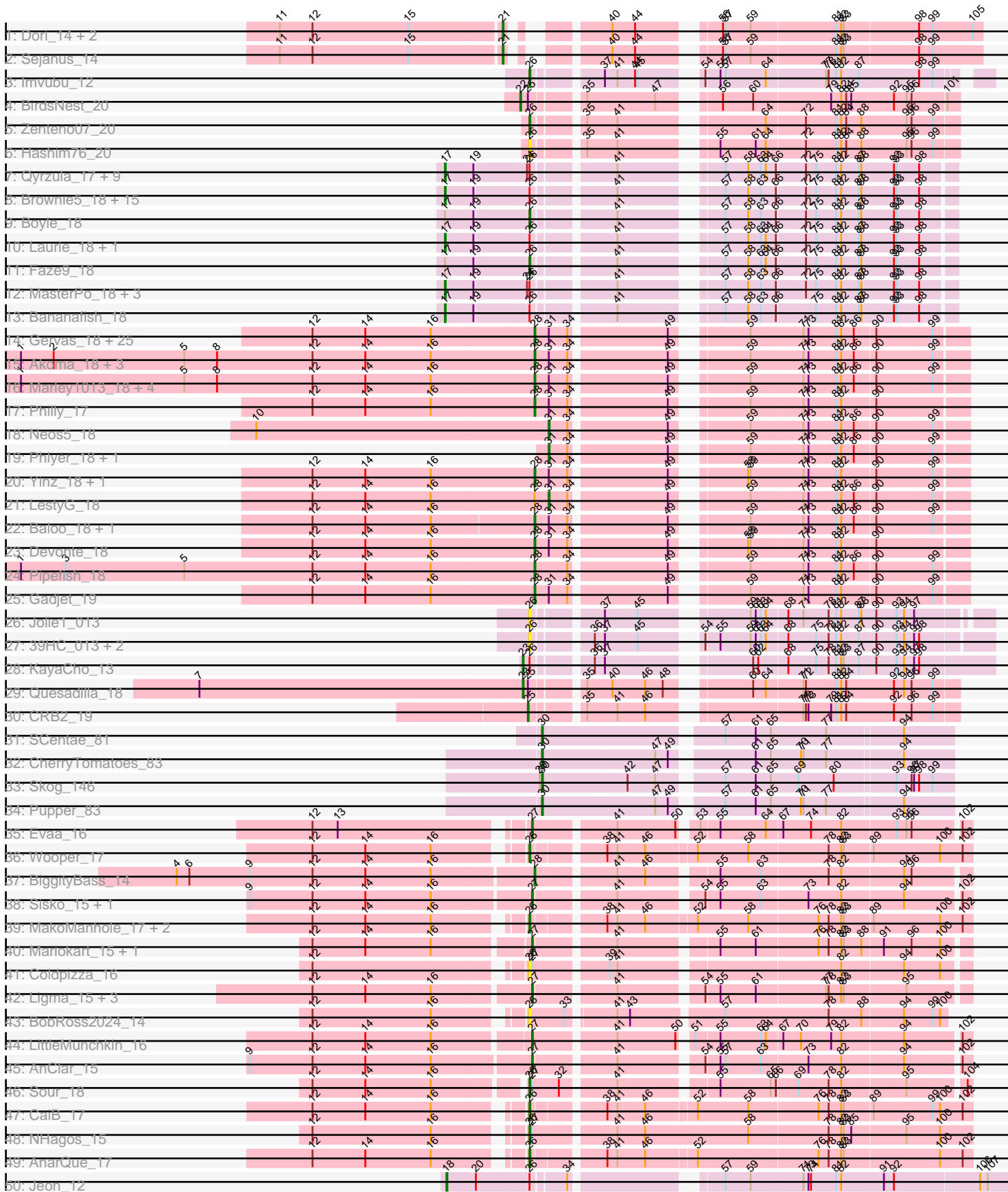


Pham 193823



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

Pham 193823 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193823 has 131 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Dori_14, Mask_14, Mao1_13
- Track 2 : Sejanus_14
- Track 3 : Imvubu_12
- Track 4 : BirdsNest_20
- Track 5 : Zenteno07_20
- Track 6 : Hashim76_20
- Track 7 : Qyrzula_17, Godines_18, LizLemon_18, Arbitrator_18, Kheth_18, Glass_18, Allegro_18, Vic9_19, Calamitous_18, Holeinone_18
- Track 8 : Brownie5_18, Rhinoforte_18, Ares_18, Opia_18, Tres_18, Rosebush_18, Eaglehorse_18, ItsyBitsy1_18, Sabella_18, Lephleur_18, FrenchFry_18, West99_18, Blocker23_18, Tinciduntolum_19, Lars_18, Hedgerow_18
- Track 9 : Boyle_18
- Track 10 : Laurie_18, Phantasmagoria_18
- Track 11 : Faze9_18
- Track 12 : MasterPo_18, Kaleb_18, TA17A_18, Coffee_18
- Track 13 : Bananafish_18
- Track 14 : Gervas_18, OrangeOswald_18, HarveySr_18, Jackstina_17, Ben11_17, MmasiCarm_18, SynergyX_18, Tydolla_18, Briakila_18, Corofin_18, Rita1961_18, RagingRooster_18, Chandler_18, Abinghost_18, SlippinJimmy_18, Audrey_18, Deenasa_18, Kronus_17, Daisy_18, Obutu_18, Phaedrus_17, Athena_19, Casbah_17, Kamiyu_18, Halfpint_17, Compostia_19
- Track 15 : Akoma_18, Yahalom_18, Bernardo_18, Phayeta_18
- Track 16 : Marley1013_18, GlenHope_19, Morty007_18, Mortcellus_17, ChaChing_18
- Track 17 : Philly_17
- Track 18 : Neos5_18
- Track 19 : Phlyer_18, RomaT_18
- Track 20 : Yinz_18, Heathcliff_18
- Track 21 : LestyG_18
- Track 22 : Baloo_18, Nozo_18
- Track 23 : Devonte_18
- Track 24 : Pipefish_18
- Track 25 : Gadjet_19
- Track 26 : Jolie1_013
- Track 27 : 39HC_013, Hosp_011, 40BC_013
- Track 28 : KayaCho_13
- Track 29 : Quesadilla_18

- Track 30 : CRB2_19
- Track 31 : SCentae_81
- Track 32 : CherryTomatoes_83
- Track 33 : Skog_146
- Track 34 : Pupper_83
- Track 35 : Evaa_16
- Track 36 : Wooper_17
- Track 37 : BiggityBass_14
- Track 38 : Sisko_15, Yago84_15
- Track 39 : MakoManhole_17, CloverMinnie_17, MossRose_17
- Track 40 : Mariokart_15, CharlottesWeb_15
- Track 41 : Coldpizza_16
- Track 42 : Ligma_15, Axumite_15, Shatter_15, Fresco_15
- Track 43 : BobRoss2024_14
- Track 44 : LittleMunchkin_16
- Track 45 : AnClar_15
- Track 46 : Sour_18
- Track 47 : CaiB_17
- Track 48 : NHagos_15
- Track 49 : AnarQue_17
- Track 50 : Jeon_12
- Track 51 : Taptic_12, Megabear_12
- Track 52 : PR_12, Cepens_12, D12_12
- Track 53 : Argie_13, GodPhather_13

Summary of Final Annotations (See graph section above for start numbers):

The start number called the most often in the published annotations is 28, it was called in 42 of the 118 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost_18, Akoma_18, Athena_19, Audrey_18, Baloo_18, Ben11_17, Bernardo_18, BiggityBass_14, Briakila_18, Casbah_17, ChaChing_18, Chandler_18, Compostia_19, Corofin_18, Daisy_18, Deenasa_18, Devonte_18, Gadget_19, Gervas_18, GlenHope_19, Halfpint_17, HarveySr_18, Heathcliff_18, Jackstina_17, Kamiyu_18, Kronus_17, Marley1013_18, MmasiCarm_18, Mortcellus_17, Morty007_18, Nozo_18, Obutu_18, OrangeOswald_18, Phaedrus_17, Phayeta_18, Philly_17, Pipefish_18, RagingRooster_18, Rita1961_18, SlippinJimmy_18, SynergyX_18, Tydolla_18, Yahalom_18, Yinz_18,

Genes that have the "Most Annotated" start but do not call it:

- LestyG_18,

Genes that do not have the "Most Annotated" start:

- 39HC_013, 40BC_013, Allegro_18, AnClar_15, AnarQue_17, Arbiter_18, Ares_18, Argie_13, Axumite_15, Bananafish_18, BirdsNest_20, Blocker23_18, BobRoss2024_14, Boyle_18, Brownie5_18, CRB2_19, CaiB_17, Calamitous_18, Cepens_12, CharlottesWeb_15, CherryTomatoes_83, CloverMinnie_17, Coffee_18, Coldpizza_16, D12_12, Dori_14, Eaglehorse_18, Evaa_16, Faze9_18, FrenchFry_18, Fresco_15, Glass_18, GodPhather_13, Godines_18, Hashim76_20,

Hedgerow_18, Holeinone_18, Hosp_011, Imvubu_12, ItsyBitsy1_18, Jeon_12, Jolie1_013, Kaleb_18, KayaCho_13, Kheth_18, Lars_18, Laurie_18, Lephleur_18, Ligma_15, LittleMunchkin_16, LizLemon_18, MakoManhole_17, Mao1_13, Mariokart_15, Mask_14, MasterPo_18, Megabear_12, MossRose_17, NHagos_15, Neos5_18, Opia_18, PR_12, Phantasmagoria_18, Phlyer_18, Pupper_83, Quesadilla_18, Qyrzula_17, Rhinoforte_18, RomaT_18, Rosebush_18, SCentae_81, Sabella_18, Sejanus_14, Shatter_15, Sisko_15, Skog_146, Sour_18, TA17A_18, Taptic_12, Tinciduntolum_19, Tres_18, Vic9_19, West99_18, Wooper_17, Yago84_15, Zenteno07_20,

Summary by start number:

Start 17:

- Found in 35 of 131 (26.7%) of genes in pham
- Manual Annotations of this start: 30 of 118
- Called 94.3% of time when present
- Phage (with cluster) where this start called: Allegro_18 (B2), Arbiter_18 (B2), Ares_18 (B2), Bananafish_18 (B2), Blocker23_18 (B2), Brownie5_18 (B2), Calamitous_18 (B2), Coffee_18 (B2), Eaglehorse_18 (B2), FrenchFry_18 (B2), Glass_18 (B2), Godines_18 (B2), Hedgerow_18 (B2), Holeinone_18 (B2), ItsyBitsy1_18 (B2), Kaleb_18 (B2), Kheth_18 (B2), Lars_18 (B2), Laurie_18 (B2), Lephleur_18 (B2), LizLemon_18 (B2), MasterPo_18 (B2), Opia_18 (B2), Phantasmagoria_18 (B2), Qyrzula_17 (B2), Rhinoforte_18 (B2), Rosebush_18 (B2), Sabella_18 (B2), TA17A_18 (B2), Tinciduntolum_19 (B2), Tres_18 (B2), Vic9_19 (B2), West99_18 (B2),

Start 18:

- Found in 8 of 131 (6.1%) of genes in pham
- Manual Annotations of this start: 3 of 118
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Jeon_12 (W), Megabear_12 (W), Taptic_12 (W),

Start 21:

- Found in 4 of 131 (3.1%) of genes in pham
- Manual Annotations of this start: 4 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dori_14 (AD), Mao1_13 (AD), Mask_14 (AD), Sejanus_14 (AD),

Start 22:

- Found in 1 of 131 (0.8%) of genes in pham
- Manual Annotations of this start: 1 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BirdsNest_20 (B13),

Start 23:

- Found in 2 of 131 (1.5%) of genes in pham
- Manual Annotations of this start: 2 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KayaCho_13 (B6), Quesadilla_18 (B9),

Start 25:

- Found in 3 of 131 (2.3%) of genes in pham
- Manual Annotations of this start: 1 of 118
- Called 33.3% of time when present
- Phage (with cluster) where this start called: CRB2_19 (B9),

Start 26:

- Found in 61 of 131 (46.6%) of genes in pham
- Manual Annotations of this start: 17 of 118
- Called 39.3% of time when present
- Phage (with cluster) where this start called: 39HC_013 (B6), 40BC_013 (B6), AnarQue_17 (DR), Argie_13 (W), BobRoss2024_14 (DR), Boyle_18 (B2), CaiB_17 (DR), Cepens_12 (W), CloverMinnie_17 (DR), Coldpizza_16 (DR), D12_12 (W), Faze9_18 (B2), GodPhather_13 (W), Hashim76_20 (B13), Hosp_011 (B6), Imvubu_12 (B10), Jolie1_013 (B6), MakoManhole_17 (DR), MossRose_17 (DR), NHagos_15 (DR), PR_12 (W), Sour_18 (DR), Wooper_17 (DR), Zenteno07_20 (B13),

Start 27:

- Found in 14 of 131 (10.7%) of genes in pham
- Manual Annotations of this start: 10 of 118
- Called 78.6% of time when present
- Phage (with cluster) where this start called: AnClar_15 (DR), Axumite_15 (DR), CharlottesWeb_15 (DR), Evaa_16 (DR), Fresco_15 (DR), Ligma_15 (DR), LittleMunchkin_16 (DR), Mariokart_15 (DR), Shatter_15 (DR), Sisko_15 (DR), Yago84_15 (DR),

Start 28:

- Found in 45 of 131 (34.4%) of genes in pham
- Manual Annotations of this start: 42 of 118
- Called 97.8% of time when present
- Phage (with cluster) where this start called: Abinghost_18 (B3), Akoma_18 (B3), Athena_19 (B3), Audrey_18 (B3), Baloo_18 (B3), Ben11_17 (B3), Bernardo_18 (B3), BiggityBass_14 (DR), Briakila_18 (B3), Casbah_17 (B3), ChaChing_18 (B3), Chandler_18 (B3), Compostia_19 (B3), Corofin_18 (B3), Daisy_18 (B3), Deenasa_18 (B3), Devonte_18 (B3), Gadjet_19 (B3), Gervas_18 (B3), GlenHope_19 (B3), Halfpint_17 (B3), HarveySr_18 (B3), Heathcliff_18 (B3), Jackstina_17 (B3), Kamiyu_18 (B3), Kronus_17 (B3), Marley1013_18 (B3), MmasiCarm_18 (B3), Mortcellus_17 (B3), Morty007_18 (B3), Nozo_18 (B3), Obutu_18 (B3), OrangeOswald_18 (B3), Phaedrus_17 (B3), Phayeta_18 (B3), Philly_17 (B3), Pipefish_18 (B3), RagingRooster_18 (B3), Rita1961_18 (B3), SlippinJimmy_18 (B3), SynergyX_18 (B3), Tydolla_18 (B3), Yahalom_18 (B3), Yinz_18 (B3),

Start 30:

- Found in 4 of 131 (3.1%) of genes in pham
- Manual Annotations of this start: 4 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes_83 (DO), Pupper_83 (DO), SCentae_81 (DO), Skog_146 (DO),

Start 31:

- Found in 46 of 131 (35.1%) of genes in pham
- Manual Annotations of this start: 4 of 118
- Called 8.7% of time when present

- Phage (with cluster) where this start called: LestyG_18 (B3), Neos5_18 (B3), Phlyer_18 (B3), RomaT_18 (B3),

Summary by clusters:

There are 10 clusters represented in this pham: DO, B2, W, B6, B13, B10, B3, DR, B9, AD,

Info for manual annotations of cluster AD:

- Start number 21 was manually annotated 4 times for cluster AD.

Info for manual annotations of cluster B10:

- Start number 26 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B13:

- Start number 22 was manually annotated 1 time for cluster B13.
- Start number 26 was manually annotated 1 time for cluster B13.

Info for manual annotations of cluster B2:

- Start number 17 was manually annotated 30 times for cluster B2.
- Start number 26 was manually annotated 2 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 28 was manually annotated 41 times for cluster B3.
- Start number 31 was manually annotated 4 times for cluster B3.

Info for manual annotations of cluster B6:

- Start number 23 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B9:

- Start number 23 was manually annotated 1 time for cluster B9.
- Start number 25 was manually annotated 1 time for cluster B9.

Info for manual annotations of cluster DO:

- Start number 30 was manually annotated 4 times for cluster DO.

Info for manual annotations of cluster DR:

- Start number 26 was manually annotated 8 times for cluster DR.
- Start number 27 was manually annotated 10 times for cluster DR.
- Start number 28 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster W:

- Start number 18 was manually annotated 3 times for cluster W.
- Start number 26 was manually annotated 5 times for cluster W.

Gene Information:

Gene: 39HC_013 Start: 13570, Stop: 14058, Start Num: 26

Candidate Starts for 39HC_013:

(Start: 26 @13570 has 17 MA's), (36, 13627), (37, 13639), (45, 13678), (54, 13732), (55, 13747), (59, 13783), (61, 13789), (63, 13795), (64, 13801), (68, 13825), (75, 13858), (78, 13873), (81, 13882), (82,

13888), (87, 13909), (90, 13927), (93, 13951), (94, 13960), (97, 13972), (98, 13978),

Gene: 40BC_013 Start: 13570, Stop: 14058, Start Num: 26

Candidate Starts for 40BC_013:

(Start: 26 @13570 has 17 MA's), (36, 13627), (37, 13639), (45, 13678), (54, 13732), (55, 13747), (59, 13783), (61, 13789), (63, 13795), (64, 13801), (68, 13825), (75, 13858), (78, 13873), (81, 13882), (82, 13888), (87, 13909), (90, 13927), (93, 13951), (94, 13960), (97, 13972), (98, 13978),

Gene: Abinghost_18 Start: 15003, Stop: 15464, Start Num: 28

Candidate Starts for Abinghost_18:

(12, 14739), (14, 14802), (16, 14880), (Start: 28 @15003 has 42 MA's), (Start: 31 @15018 has 4 MA's), (34, 15039), (49, 15147), (59, 15216), (71, 15276), (73, 15282), (81, 15315), (82, 15321), (86, 15336), (90, 15360), (99, 15426),

Gene: Akoma_18 Start: 15003, Stop: 15464, Start Num: 28

Candidate Starts for Akoma_18:

(1, 14391), (2, 14430), (5, 14586), (8, 14625), (12, 14739), (14, 14802), (16, 14880), (Start: 28 @15003 has 42 MA's), (Start: 31 @15018 has 4 MA's), (34, 15039), (49, 15147), (59, 15216), (71, 15276), (73, 15282), (81, 15315), (82, 15321), (86, 15336), (90, 15360), (99, 15426),

Gene: Allegro_18 Start: 16139, Stop: 16681, Start Num: 17

Candidate Starts for Allegro_18:

(Start: 17 @16139 has 30 MA's), (19, 16172), (24, 16232), (Start: 26 @16235 has 17 MA's), (41, 16319), (57, 16418), (58, 16445), (63, 16460), (64, 16466), (66, 16478), (72, 16511), (75, 16523), (81, 16547), (82, 16553), (87, 16574), (88, 16577), (92, 16613), (93, 16616), (98, 16643),

Gene: AnClar_15 Start: 14164, Stop: 14637, Start Num: 27

Candidate Starts for AnClar_15:

(9, 13834), (12, 13909), (14, 13972), (16, 14050), (Start: 27 @14164 has 10 MA's), (41, 14248), (54, 14338), (55, 14353), (57, 14359), (63, 14401), (73, 14455), (82, 14494), (94, 14566), (102, 14626),

Gene: AnarQue_17 Start: 14776, Stop: 15270, Start Num: 26

Candidate Starts for AnarQue_17:

(12, 14545), (14, 14608), (16, 14686), (Start: 26 @14776 has 17 MA's), (38, 14848), (41, 14860), (46, 14893), (52, 14950), (76, 15091), (78, 15103), (82, 15118), (83, 15121), (100, 15232), (102, 15259),

Gene: Arbiter_18 Start: 16226, Stop: 16768, Start Num: 17

Candidate Starts for Arbiter_18:

(Start: 17 @16226 has 30 MA's), (19, 16259), (24, 16319), (Start: 26 @16322 has 17 MA's), (41, 16406), (57, 16505), (58, 16532), (63, 16547), (64, 16553), (66, 16565), (72, 16598), (75, 16610), (81, 16634), (82, 16640), (87, 16661), (88, 16664), (92, 16700), (93, 16703), (98, 16730),

Gene: Ares_18 Start: 16139, Stop: 16681, Start Num: 17

Candidate Starts for Ares_18:

(Start: 17 @16139 has 30 MA's), (19, 16172), (Start: 26 @16235 has 17 MA's), (41, 16319), (57, 16418), (58, 16445), (63, 16460), (66, 16478), (72, 16511), (75, 16523), (81, 16547), (82, 16553), (87, 16574), (88, 16577), (92, 16613), (93, 16616), (98, 16643),

Gene: Argie_13 Start: 14276, Stop: 14797, Start Num: 26

Candidate Starts for Argie_13:

(Start: 18 @14180 has 3 MA's), (20, 14213), (Start: 26 @14276 has 17 MA's), (34, 14312), (42, 14372), (57, 14459), (59, 14489), (71, 14549), (73, 14555), (74, 14558), (81, 14588), (82, 14594), (91, 14642), (92, 14654), (98, 14684), (106, 14753), (107, 14762),

Gene: Athena_19 Start: 15766, Stop: 16227, Start Num: 28

Candidate Starts for Athena_19:

(12, 15502), (14, 15565), (16, 15643), (Start: 28 @15766 has 42 MA's), (Start: 31 @15781 has 4 MA's), (34, 15802), (49, 15910), (59, 15979), (71, 16039), (73, 16045), (81, 16078), (82, 16084), (86, 16099), (90, 16123), (99, 16189),

Gene: Audrey_18 Start: 15003, Stop: 15464, Start Num: 28

Candidate Starts for Audrey_18:

(12, 14739), (14, 14802), (16, 14880), (Start: 28 @15003 has 42 MA's), (Start: 31 @15018 has 4 MA's), (34, 15039), (49, 15147), (59, 15216), (71, 15276), (73, 15282), (81, 15315), (82, 15321), (86, 15336), (90, 15360), (99, 15426),

Gene: Axumite_15 Start: 13329, Stop: 13802, Start Num: 27

Candidate Starts for Axumite_15:

(12, 13077), (14, 13140), (16, 13218), (Start: 27 @13329 has 10 MA's), (41, 13413), (54, 13503), (55, 13518), (61, 13560), (77, 13641), (78, 13644), (82, 13659), (83, 13662), (95, 13734),

Gene: Baloo_18 Start: 15000, Stop: 15461, Start Num: 28

Candidate Starts for Baloo_18:

(12, 14739), (14, 14802), (16, 14880), (Start: 28 @15000 has 42 MA's), (Start: 31 @15015 has 4 MA's), (34, 15036), (49, 15144), (59, 15213), (71, 15273), (73, 15279), (81, 15312), (82, 15318), (86, 15333), (90, 15357), (99, 15423),

Gene: Bananafish_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Bananafish_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Ben11_17 Start: 14827, Stop: 15288, Start Num: 28

Candidate Starts for Ben11_17:

(12, 14563), (14, 14626), (16, 14704), (Start: 28 @14827 has 42 MA's), (Start: 31 @14842 has 4 MA's), (34, 14863), (49, 14971), (59, 15040), (71, 15100), (73, 15106), (81, 15139), (82, 15145), (86, 15160), (90, 15184), (99, 15250),

Gene: Bernardo_18 Start: 15002, Stop: 15463, Start Num: 28

Candidate Starts for Bernardo_18:

(1, 14390), (2, 14429), (5, 14585), (8, 14624), (12, 14738), (14, 14801), (16, 14879), (Start: 28 @15002 has 42 MA's), (Start: 31 @15017 has 4 MA's), (34, 15038), (49, 15146), (59, 15215), (71, 15275), (73, 15281), (81, 15314), (82, 15320), (86, 15335), (90, 15359), (99, 15425),

Gene: BiggityBass_14 Start: 13261, Stop: 13734, Start Num: 28

Candidate Starts for BiggityBass_14:

(4, 12841), (6, 12856), (9, 12928), (12, 13003), (14, 13066), (16, 13144), (Start: 28 @13261 has 42 MA's), (41, 13345), (46, 13378), (55, 13450), (63, 13498), (78, 13576), (82, 13591), (94, 13663), (96, 13672),

Gene: BirdsNest_20 Start: 14291, Stop: 14755, Start Num: 22

Candidate Starts for BirdsNest_20:

(Start: 22 @14291 has 1 MA's), (Start: 25 @14300 has 1 MA's), (35, 14348), (47, 14429), (56, 14480), (60, 14516), (79, 14606), (82, 14618), (84, 14624), (85, 14630), (92, 14681), (95, 14696), (96, 14702), (101, 14741),

Gene: Blocker23_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for Blocker23_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: BobRoss2024_14 Start: 13152, Stop: 13616, Start Num: 26

Candidate Starts for BobRoss2024_14:

(12, 12921), (16, 13062), (Start: 26 @13152 has 17 MA's), (33, 13191), (41, 13239), (43, 13254), (57, 13356), (78, 13479), (88, 13518), (94, 13566), (99, 13599), (100, 13608),

Gene: Boyle_18 Start: 16353, Stop: 16799, Start Num: 26

Candidate Starts for Boyle_18:

(Start: 17 @16257 has 30 MA's), (19, 16290), (Start: 26 @16353 has 17 MA's), (41, 16437), (57, 16536), (58, 16563), (63, 16578), (66, 16596), (72, 16629), (75, 16641), (81, 16665), (82, 16671), (87, 16692), (88, 16695), (92, 16731), (93, 16734), (98, 16761),

Gene: Briakila_18 Start: 15768, Stop: 16229, Start Num: 28

Candidate Starts for Briakila_18:

(12, 15504), (14, 15567), (16, 15645), (Start: 28 @15768 has 42 MA's), (Start: 31 @15783 has 4 MA's), (34, 15804), (49, 15912), (59, 15981), (71, 16041), (73, 16047), (81, 16080), (82, 16086), (86, 16101), (90, 16125), (99, 16191),

Gene: Brownie5_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for Brownie5_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: CRB2_19 Start: 16553, Stop: 17008, Start Num: 25

Candidate Starts for CRB2_19:

(Start: 25 @16553 has 1 MA's), (35, 16601), (41, 16637), (46, 16670), (71, 16826), (72, 16829), (73, 16832), (79, 16859), (81, 16865), (82, 16871), (84, 16877), (92, 16934), (96, 16955), (99, 16979),

Gene: CaiB_17 Start: 14761, Stop: 15255, Start Num: 26

Candidate Starts for CaiB_17:

(12, 14530), (14, 14593), (16, 14671), (Start: 26 @14761 has 17 MA's), (38, 14833), (41, 14845), (46, 14878), (52, 14935), (58, 14995), (76, 15076), (78, 15088), (82, 15103), (83, 15106), (89, 15139), (99, 15208), (100, 15217), (102, 15244),

Gene: Calamitous_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Calamitous_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (24, 16229), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (64, 16463), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Casbah_17 Start: 14855, Stop: 15316, Start Num: 28

Candidate Starts for Casbah_17:

(12, 14591), (14, 14654), (16, 14732), (Start: 28 @14855 has 42 MA's), (Start: 31 @14870 has 4 MA's), (34, 14891), (49, 14999), (59, 15068), (71, 15128), (73, 15134), (81, 15167), (82, 15173), (86, 15188), (90, 15212), (99, 15278),

Gene: Cepens_12 Start: 14000, Stop: 14521, Start Num: 26

Candidate Starts for Cepens_12:

(Start: 18 @13904 has 3 MA's), (20, 13937), (Start: 26 @14000 has 17 MA's), (34, 14036), (42, 14096), (57, 14183), (59, 14213), (71, 14273), (73, 14279), (74, 14282), (81, 14312), (82, 14318), (91, 14366), (92, 14378), (106, 14477), (107, 14486),

Gene: ChaChing_18 Start: 15018, Stop: 15479, Start Num: 28

Candidate Starts for ChaChing_18:

(1, 14406), (5, 14601), (8, 14640), (12, 14754), (14, 14817), (16, 14895), (Start: 28 @15018 has 42 MA's), (Start: 31 @15033 has 4 MA's), (34, 15054), (49, 15162), (59, 15231), (71, 15291), (73, 15297), (81, 15330), (82, 15336), (86, 15351), (90, 15375), (99, 15441),

Gene: Chandler_18 Start: 15777, Stop: 16238, Start Num: 28

Candidate Starts for Chandler_18:

(12, 15513), (14, 15576), (16, 15654), (Start: 28 @15777 has 42 MA's), (Start: 31 @15792 has 4 MA's), (34, 15813), (49, 15921), (59, 15990), (71, 16050), (73, 16056), (81, 16089), (82, 16095), (86, 16110), (90, 16134), (99, 16200),

Gene: CharlottesWeb_15 Start: 13239, Stop: 13712, Start Num: 27

Candidate Starts for CharlottesWeb_15:

(12, 12993), (14, 13056), (16, 13134), (Start: 27 @13239 has 10 MA's), (41, 13323), (55, 13428), (61, 13470), (76, 13542), (78, 13554), (82, 13569), (83, 13572), (88, 13593), (91, 13617), (96, 13650), (100, 13683),

Gene: CherryTomatoes_83 Start: 31959, Stop: 32417, Start Num: 30

Candidate Starts for CherryTomatoes_83:

(Start: 30 @31959 has 4 MA's), (47, 32091), (49, 32106), (61, 32190), (65, 32208), (70, 32244), (71, 32247), (77, 32274), (94, 32361),

Gene: CloverMinnie_17 Start: 14701, Stop: 15195, Start Num: 26

Candidate Starts for CloverMinnie_17:

(12, 14470), (14, 14533), (16, 14611), (Start: 26 @14701 has 17 MA's), (38, 14773), (41, 14785), (46, 14818), (52, 14875), (58, 14935), (76, 15016), (78, 15028), (82, 15043), (83, 15046), (89, 15079), (100, 15157), (102, 15184),

Gene: Coffee_18 Start: 16253, Stop: 16795, Start Num: 17

Candidate Starts for Coffee_18:

(Start: 17 @16253 has 30 MA's), (19, 16286), (24, 16346), (Start: 26 @16349 has 17 MA's), (41, 16433), (57, 16532), (58, 16559), (63, 16574), (66, 16592), (72, 16625), (75, 16637), (81, 16661), (82, 16667), (87, 16688), (88, 16691), (92, 16727), (93, 16730), (98, 16757),

Gene: Coldpizza_16 Start: 15299, Stop: 15778, Start Num: 26

Candidate Starts for Coldpizza_16:

(12, 15068), (Start: 26 @15299 has 17 MA's), (Start: 27 @15302 has 10 MA's), (39, 15380), (41, 15389), (82, 15635), (94, 15707), (100, 15749),

Gene: Compostia_19 Start: 15436, Stop: 15897, Start Num: 28

Candidate Starts for Compostia_19:

(12, 15172), (14, 15235), (16, 15313), (Start: 28 @15436 has 42 MA's), (Start: 31 @15451 has 4 MA's), (34, 15472), (49, 15580), (59, 15649), (71, 15709), (73, 15715), (81, 15748), (82, 15754), (86, 15769), (90, 15793), (99, 15859),

Gene: Corofin_18 Start: 15028, Stop: 15489, Start Num: 28

Candidate Starts for Corofin_18:

(12, 14764), (14, 14827), (16, 14905), (Start: 28 @15028 has 42 MA's), (Start: 31 @15043 has 4 MA's), (34, 15064), (49, 15172), (59, 15241), (71, 15301), (73, 15307), (81, 15340), (82, 15346), (86, 15361), (90, 15385), (99, 15451),

Gene: D12_12 Start: 13993, Stop: 14514, Start Num: 26

Candidate Starts for D12_12:

(Start: 18 @13897 has 3 MA's), (20, 13930), (Start: 26 @13993 has 17 MA's), (34, 14029), (42, 14089), (57, 14176), (59, 14206), (71, 14266), (73, 14272), (74, 14275), (81, 14305), (82, 14311), (91, 14359), (92, 14371), (106, 14470), (107, 14479),

Gene: Daisy_18 Start: 15024, Stop: 15485, Start Num: 28

Candidate Starts for Daisy_18:

(12, 14760), (14, 14823), (16, 14901), (Start: 28 @15024 has 42 MA's), (Start: 31 @15039 has 4 MA's), (34, 15060), (49, 15168), (59, 15237), (71, 15297), (73, 15303), (81, 15336), (82, 15342), (86, 15357), (90, 15381), (99, 15447),

Gene: Deenasa_18 Start: 15766, Stop: 16227, Start Num: 28

Candidate Starts for Deenasa_18:

(12, 15502), (14, 15565), (16, 15643), (Start: 28 @15766 has 42 MA's), (Start: 31 @15781 has 4 MA's), (34, 15802), (49, 15910), (59, 15979), (71, 16039), (73, 16045), (81, 16078), (82, 16084), (86, 16099), (90, 16123), (99, 16189),

Gene: Devonte_18 Start: 15003, Stop: 15464, Start Num: 28

Candidate Starts for Devonte_18:

(12, 14739), (14, 14802), (16, 14880), (Start: 28 @15003 has 42 MA's), (Start: 31 @15018 has 4 MA's), (34, 15039), (49, 15147), (58, 15213), (59, 15216), (71, 15276), (73, 15282), (81, 15315), (82, 15321), (90, 15360),

Gene: Dori_14 Start: 11980, Stop: 12462, Start Num: 21

Candidate Starts for Dori_14:

(11, 11722), (12, 11761), (15, 11875), (Start: 21 @11980 has 4 MA's), (40, 12058), (44, 12085), (56, 12160), (57, 12163), (59, 12193), (81, 12292), (82, 12298), (83, 12301), (98, 12388), (99, 12403), (105, 12451),

Gene: Eaglehorse_18 Start: 16160, Stop: 16702, Start Num: 17

Candidate Starts for Eaglehorse_18:

(Start: 17 @16160 has 30 MA's), (19, 16193), (Start: 26 @16256 has 17 MA's), (41, 16340), (57, 16439), (58, 16466), (63, 16481), (66, 16499), (72, 16532), (75, 16544), (81, 16568), (82, 16574), (87, 16595), (88, 16598), (92, 16634), (93, 16637), (98, 16664),

Gene: Evaa_16 Start: 14619, Stop: 15095, Start Num: 27

Candidate Starts for Evaa_16:

(12, 14385), (13, 14415), (Start: 27 @14619 has 10 MA's), (41, 14706), (50, 14775), (53, 14790), (55, 14811), (64, 14865), (67, 14883), (74, 14916), (82, 14952), (93, 15015), (95, 15027), (96, 15033), (102, 15084),

Gene: Faze9_18 Start: 16349, Stop: 16795, Start Num: 26

Candidate Starts for Faze9_18:

(Start: 17 @16253 has 30 MA's), (19, 16286), (Start: 26 @16349 has 17 MA's), (41, 16433), (57, 16532), (58, 16559), (63, 16574), (64, 16580), (66, 16592), (72, 16625), (75, 16637), (81, 16661), (82, 16667), (87, 16688), (88, 16691), (92, 16727), (93, 16730), (98, 16757),

Gene: FrenchFry_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for FrenchFry_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: Fresco_15 Start: 13329, Stop: 13802, Start Num: 27

Candidate Starts for Fresco_15:

(12, 13077), (14, 13140), (16, 13218), (Start: 27 @13329 has 10 MA's), (41, 13413), (54, 13503), (55, 13518), (61, 13560), (77, 13641), (78, 13644), (82, 13659), (83, 13662), (95, 13734),

Gene: Gadget_19 Start: 15007, Stop: 15468, Start Num: 28

Candidate Starts for Gadget_19:

(12, 14743), (14, 14806), (16, 14884), (Start: 28 @15007 has 42 MA's), (Start: 31 @15022 has 4 MA's), (34, 15043), (49, 15151), (59, 15220), (71, 15280), (73, 15286), (81, 15319), (82, 15325), (90, 15364), (99, 15430),

Gene: Gervas_18 Start: 14986, Stop: 15447, Start Num: 28

Candidate Starts for Gervas_18:

(12, 14722), (14, 14785), (16, 14863), (Start: 28 @14986 has 42 MA's), (Start: 31 @15001 has 4 MA's), (34, 15022), (49, 15130), (59, 15199), (71, 15259), (73, 15265), (81, 15298), (82, 15304), (86, 15319), (90, 15343), (99, 15409),

Gene: Glass_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for Glass_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (24, 16349), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (64, 16583), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: GlenHope_19 Start: 14993, Stop: 15454, Start Num: 28

Candidate Starts for GlenHope_19:

(1, 14381), (5, 14576), (8, 14615), (12, 14729), (14, 14792), (16, 14870), (Start: 28 @14993 has 42 MA's), (Start: 31 @15008 has 4 MA's), (34, 15029), (49, 15137), (59, 15206), (71, 15266), (73, 15272), (81, 15305), (82, 15311), (86, 15326), (90, 15350), (99, 15416),

Gene: GodPhather_13 Start: 14258, Stop: 14779, Start Num: 26

Candidate Starts for GodPhather_13:

(Start: 18 @14162 has 3 MA's), (20, 14195), (Start: 26 @14258 has 17 MA's), (34, 14294), (42, 14354), (57, 14441), (59, 14471), (71, 14531), (73, 14537), (74, 14540), (81, 14570), (82, 14576), (91, 14624), (92, 14636), (98, 14666), (106, 14735), (107, 14744),

Gene: Godines_18 Start: 16139, Stop: 16693, Start Num: 17

Candidate Starts for Godines_18:

(Start: 17 @16139 has 30 MA's), (19, 16172), (24, 16232), (Start: 26 @16235 has 17 MA's), (41, 16331), (57, 16430), (58, 16457), (63, 16472), (64, 16478), (66, 16490), (72, 16523), (75, 16535), (81, 16559), (82, 16565), (87, 16586), (88, 16589), (92, 16625), (93, 16628), (98, 16655),

Gene: Halfpint_17 Start: 14828, Stop: 15289, Start Num: 28

Candidate Starts for Halfpint_17:

(12, 14564), (14, 14627), (16, 14705), (Start: 28 @14828 has 42 MA's), (Start: 31 @14843 has 4 MA's), (34, 14864), (49, 14972), (59, 15041), (71, 15101), (73, 15107), (81, 15140), (82, 15146), (86, 15161), (90, 15185), (99, 15251),

Gene: HarveySr_18 Start: 14980, Stop: 15441, Start Num: 28

Candidate Starts for HarveySr_18:

(12, 14716), (14, 14779), (16, 14857), (Start: 28 @14980 has 42 MA's), (Start: 31 @14995 has 4 MA's), (34, 15016), (49, 15124), (59, 15193), (71, 15253), (73, 15259), (81, 15292), (82, 15298), (86, 15313), (90, 15337), (99, 15403),

Gene: Hashim76_20 Start: 14543, Stop: 14998, Start Num: 26

Candidate Starts for Hashim76_20:

(Start: 26 @14543 has 17 MA's), (35, 14591), (41, 14627), (55, 14720), (61, 14762), (64, 14774), (72, 14819), (81, 14855), (82, 14861), (84, 14867), (88, 14885), (95, 14939), (96, 14945), (99, 14969),

Gene: Heathcliff_18 Start: 14965, Stop: 15426, Start Num: 28

Candidate Starts for Heathcliff_18:

(12, 14701), (14, 14764), (16, 14842), (Start: 28 @14965 has 42 MA's), (Start: 31 @14980 has 4 MA's), (34, 15001), (49, 15109), (58, 15175), (59, 15178), (71, 15238), (73, 15244), (81, 15277), (82, 15283), (90, 15322), (99, 15388),

Gene: Hedgerow_18 Start: 16238, Stop: 16780, Start Num: 17

Candidate Starts for Hedgerow_18:

(Start: 17 @16238 has 30 MA's), (19, 16271), (Start: 26 @16334 has 17 MA's), (41, 16418), (57, 16517), (58, 16544), (63, 16559), (66, 16577), (72, 16610), (75, 16622), (81, 16646), (82, 16652), (87, 16673), (88, 16676), (92, 16712), (93, 16715), (98, 16742),

Gene: Holeinone_18 Start: 16138, Stop: 16680, Start Num: 17

Candidate Starts for Holeinone_18:

(Start: 17 @16138 has 30 MA's), (19, 16171), (24, 16231), (Start: 26 @16234 has 17 MA's), (41, 16318), (57, 16417), (58, 16444), (63, 16459), (64, 16465), (66, 16477), (72, 16510), (75, 16522), (81, 16546), (82, 16552), (87, 16573), (88, 16576), (92, 16612), (93, 16615), (98, 16642),

Gene: Hosp_011 Start: 11772, Stop: 12260, Start Num: 26

Candidate Starts for Hosp_011:

(Start: 26 @11772 has 17 MA's), (36, 11829), (37, 11841), (45, 11880), (54, 11934), (55, 11949), (59, 11985), (61, 11991), (63, 11997), (64, 12003), (68, 12027), (75, 12060), (78, 12075), (81, 12084), (82, 12090), (87, 12111), (90, 12129), (93, 12153), (94, 12162), (97, 12174), (98, 12180),

Gene: Imvubu_12 Start: 12561, Stop: 13034, Start Num: 26

Candidate Starts for Imvubu_12:

(Start: 26 @12561 has 17 MA's), (37, 12630), (41, 12645), (44, 12666), (45, 12669), (54, 12723), (55, 12738), (57, 12744), (64, 12792), (77, 12861), (78, 12864), (81, 12873), (82, 12879), (87, 12900), (98, 12969), (99, 12984),

Gene: ItsyBitsy1_18 Start: 16130, Stop: 16672, Start Num: 17

Candidate Starts for ItsyBitsy1_18:

(Start: 17 @16130 has 30 MA's), (19, 16163), (Start: 26 @16226 has 17 MA's), (41, 16310), (57, 16409), (58, 16436), (63, 16451), (66, 16469), (72, 16502), (75, 16514), (81, 16538), (82, 16544), (87, 16565), (88, 16568), (92, 16604), (93, 16607), (98, 16634),

Gene: Jackstina_17 Start: 14929, Stop: 15390, Start Num: 28

Candidate Starts for Jackstina_17:

(12, 14665), (14, 14728), (16, 14806), (Start: 28 @14929 has 42 MA's), (Start: 31 @14944 has 4 MA's), (34, 14965), (49, 15073), (59, 15142), (71, 15202), (73, 15208), (81, 15241), (82, 15247), (86, 15262), (90, 15286), (99, 15352),

Gene: Jeon_12 Start: 13904, Stop: 14521, Start Num: 18

Candidate Starts for Jeon_12:

(Start: 18 @13904 has 3 MA's), (20, 13937), (Start: 26 @14000 has 17 MA's), (34, 14036), (57, 14183), (59, 14213), (71, 14273), (73, 14279), (74, 14282), (81, 14312), (82, 14318), (91, 14366), (92, 14378), (106, 14477), (107, 14486),

Gene: Jolie1_013 Start: 13551, Stop: 14030, Start Num: 26

Candidate Starts for Jolie1_013:

(Start: 26 @13551 has 17 MA's), (37, 13620), (45, 13659), (59, 13764), (61, 13770), (63, 13776), (64, 13782), (68, 13806), (71, 13824), (78, 13854), (81, 13863), (82, 13869), (87, 13890), (88, 13893), (90, 13908), (93, 13932), (94, 13941), (97, 13953),

Gene: Kaleb_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for Kaleb_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (24, 16349), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: Kamiyu_18 Start: 14974, Stop: 15435, Start Num: 28

Candidate Starts for Kamiyu_18:

(12, 14710), (14, 14773), (16, 14851), (Start: 28 @14974 has 42 MA's), (Start: 31 @14989 has 4 MA's), (34, 15010), (49, 15118), (59, 15187), (71, 15247), (73, 15253), (81, 15286), (82, 15292), (86, 15307), (90, 15331), (99, 15397),

Gene: KayaCho_13 Start: 13548, Stop: 14048, Start Num: 23

Candidate Starts for KayaCho_13:

(Start: 23 @13548 has 2 MA's), (Start: 26 @13554 has 17 MA's), (36, 13611), (37, 13623), (60, 13770), (62, 13776), (68, 13809), (75, 13842), (78, 13857), (81, 13866), (82, 13872), (83, 13875), (87, 13893), (90, 13911), (93, 13935), (94, 13944), (97, 13956), (98, 13962),

Gene: Kheth_18 Start: 16139, Stop: 16681, Start Num: 17

Candidate Starts for Kheth_18:

(Start: 17 @16139 has 30 MA's), (19, 16172), (24, 16232), (Start: 26 @16235 has 17 MA's), (41, 16319), (57, 16418), (58, 16445), (63, 16460), (64, 16466), (66, 16478), (72, 16511), (75, 16523), (81, 16547), (82, 16553), (87, 16574), (88, 16577), (92, 16613), (93, 16616), (98, 16643),

Gene: Kronus_17 Start: 15586, Stop: 16047, Start Num: 28

Candidate Starts for Kronus_17:

(12, 15322), (14, 15385), (16, 15463), (Start: 28 @15586 has 42 MA's), (Start: 31 @15601 has 4 MA's), (34, 15622), (49, 15730), (59, 15799), (71, 15859), (73, 15865), (81, 15898), (82, 15904), (86, 15919), (90, 15943), (99, 16009),

Gene: Lars_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for Lars_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: Laurie_18 Start: 16134, Stop: 16676, Start Num: 17

Candidate Starts for Laurie_18:

(Start: 17 @16134 has 30 MA's), (19, 16167), (Start: 26 @16230 has 17 MA's), (41, 16314), (57, 16413), (58, 16440), (63, 16455), (64, 16461), (66, 16473), (72, 16506), (75, 16518), (81, 16542), (82, 16548), (87, 16569), (88, 16572), (92, 16608), (93, 16611), (98, 16638),

Gene: Lephleur_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Lephleur_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: LestyG_18 Start: 15022, Stop: 15468, Start Num: 31

Candidate Starts for LestyG_18:

(12, 14743), (14, 14806), (16, 14884), (Start: 28 @15007 has 42 MA's), (Start: 31 @15022 has 4 MA's), (34, 15043), (49, 15151), (59, 15220), (71, 15280), (73, 15286), (81, 15319), (82, 15325), (86, 15340), (90, 15364), (99, 15430),

Gene: Ligma_15 Start: 13329, Stop: 13802, Start Num: 27

Candidate Starts for Ligma_15:

(12, 13077), (14, 13140), (16, 13218), (Start: 27 @13329 has 10 MA's), (41, 13413), (54, 13503), (55, 13518), (61, 13560), (77, 13641), (78, 13644), (82, 13659), (83, 13662), (95, 13734),

Gene: LittleMunchkin_16 Start: 14770, Stop: 15246, Start Num: 27

Candidate Starts for LittleMunchkin_16:

(12, 14521), (14, 14584), (16, 14662), (Start: 27 @14770 has 10 MA's), (41, 14857), (50, 14926), (51, 14935), (55, 14962), (63, 15010), (64, 15016), (67, 15034), (70, 15055), (79, 15091), (82, 15103), (94, 15175), (102, 15235),

Gene: LizLemon_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for LizLemon_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (24, 16349), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (64, 16583), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: MakoManhole_17 Start: 14779, Stop: 15273, Start Num: 26

Candidate Starts for MakoManhole_17:

(12, 14548), (14, 14611), (16, 14689), (Start: 26 @14779 has 17 MA's), (38, 14851), (41, 14863), (46, 14896), (52, 14953), (58, 15013), (76, 15094), (78, 15106), (82, 15121), (83, 15124), (89, 15157), (100, 15235), (102, 15262),

Gene: Mao1_13 Start: 12376, Stop: 12858, Start Num: 21

Candidate Starts for Mao1_13:

(11, 12118), (12, 12157), (15, 12271), (Start: 21 @12376 has 4 MA's), (40, 12454), (44, 12481), (56, 12556), (57, 12559), (59, 12589), (81, 12688), (82, 12694), (83, 12697), (98, 12784), (99, 12799), (105, 12847),

Gene: Mariokart_15 Start: 13238, Stop: 13711, Start Num: 27

Candidate Starts for Mariokart_15:

(12, 12992), (14, 13055), (16, 13133), (Start: 27 @13238 has 10 MA's), (41, 13322), (55, 13427), (61, 13469), (76, 13541), (78, 13553), (82, 13568), (83, 13571), (88, 13592), (91, 13616), (96, 13649), (100, 13682),

Gene: Marley1013_18 Start: 15787, Stop: 16248, Start Num: 28

Candidate Starts for Marley1013_18:

(1, 15175), (5, 15370), (8, 15409), (12, 15523), (14, 15586), (16, 15664), (Start: 28 @15787 has 42 MA's), (Start: 31 @15802 has 4 MA's), (34, 15823), (49, 15931), (59, 16000), (71, 16060), (73, 16066), (81, 16099), (82, 16105), (86, 16120), (90, 16144), (99, 16210),

Gene: Mask_14 Start: 12377, Stop: 12859, Start Num: 21

Candidate Starts for Mask_14:

(11, 12119), (12, 12158), (15, 12272), (Start: 21 @12377 has 4 MA's), (40, 12455), (44, 12482), (56, 12557), (57, 12560), (59, 12590), (81, 12689), (82, 12695), (83, 12698), (98, 12785), (99, 12800), (105, 12848),

Gene: MasterPo_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for MasterPo_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (24, 16229), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Megabear_12 Start: 13847, Stop: 14464, Start Num: 18

Candidate Starts for Megabear_12:

(Start: 18 @13847 has 3 MA's), (20, 13880), (Start: 26 @13943 has 17 MA's), (34, 13979), (42, 14039), (57, 14126), (59, 14156), (71, 14216), (73, 14222), (74, 14225), (81, 14255), (82, 14261), (91, 14309), (92, 14321), (103, 14402), (106, 14420), (107, 14429),

Gene: MmasiCarm_18 Start: 15000, Stop: 15461, Start Num: 28

Candidate Starts for MmasiCarm_18:

(12, 14736), (14, 14799), (16, 14877), (Start: 28 @15000 has 42 MA's), (Start: 31 @15015 has 4 MA's), (34, 15036), (49, 15144), (59, 15213), (71, 15273), (73, 15279), (81, 15312), (82, 15318), (86, 15333), (90, 15357), (99, 15423),

Gene: Mortcellus_17 Start: 15641, Stop: 16102, Start Num: 28

Candidate Starts for Mortcellus_17:

(1, 15029), (5, 15224), (8, 15263), (12, 15377), (14, 15440), (16, 15518), (Start: 28 @15641 has 42 MA's), (Start: 31 @15656 has 4 MA's), (34, 15677), (49, 15785), (59, 15854), (71, 15914), (73, 15920), (81, 15953), (82, 15959), (86, 15974), (90, 15998), (99, 16064),

Gene: Morty007_18 Start: 15787, Stop: 16248, Start Num: 28

Candidate Starts for Morty007_18:

(1, 15175), (5, 15370), (8, 15409), (12, 15523), (14, 15586), (16, 15664), (Start: 28 @15787 has 42 MA's), (Start: 31 @15802 has 4 MA's), (34, 15823), (49, 15931), (59, 16000), (71, 16060), (73, 16066), (81, 16099), (82, 16105), (86, 16120), (90, 16144), (99, 16210),

Gene: MossRose_17 Start: 14758, Stop: 15252, Start Num: 26

Candidate Starts for MossRose_17:

(12, 14527), (14, 14590), (16, 14668), (Start: 26 @14758 has 17 MA's), (38, 14830), (41, 14842), (46, 14875), (52, 14932), (58, 14992), (76, 15073), (78, 15085), (82, 15100), (83, 15103), (89, 15136), (100, 15214), (102, 15241),

Gene: NHagos_15 Start: 13225, Stop: 13731, Start Num: 26

Candidate Starts for NHagos_15:

(12, 12994), (16, 13135), (Start: 26 @13225 has 17 MA's), (Start: 27 @13228 has 10 MA's), (41, 13315), (46, 13348), (58, 13471), (78, 13564), (82, 13579), (83, 13582), (85, 13591), (95, 13654), (100, 13693),

Gene: Neos5_18 Start: 15810, Stop: 16256, Start Num: 31

Candidate Starts for Neos5_18:

(10, 15462), (Start: 31 @15810 has 4 MA's), (34, 15831), (49, 15939), (59, 16008), (71, 16068), (73, 16074), (81, 16107), (82, 16113), (86, 16128), (90, 16152), (99, 16218),

Gene: Nozo_18 Start: 15765, Stop: 16226, Start Num: 28

Candidate Starts for Nozo_18:

(12, 15504), (14, 15567), (16, 15645), (Start: 28 @15765 has 42 MA's), (Start: 31 @15780 has 4 MA's), (34, 15801), (49, 15909), (59, 15978), (71, 16038), (73, 16044), (81, 16077), (82, 16083), (86, 16098), (90, 16122), (99, 16188),

Gene: Obutu_18 Start: 14998, Stop: 15459, Start Num: 28

Candidate Starts for Obutu_18:

(12, 14734), (14, 14797), (16, 14875), (Start: 28 @14998 has 42 MA's), (Start: 31 @15013 has 4 MA's), (34, 15034), (49, 15142), (59, 15211), (71, 15271), (73, 15277), (81, 15310), (82, 15316), (86, 15331), (90, 15355), (99, 15421),

Gene: Opia_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Opia_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: OrangeOswald_18 Start: 15003, Stop: 15464, Start Num: 28

Candidate Starts for OrangeOswald_18:

(12, 14739), (14, 14802), (16, 14880), (Start: 28 @15003 has 42 MA's), (Start: 31 @15018 has 4 MA's), (34, 15039), (49, 15147), (59, 15216), (71, 15276), (73, 15282), (81, 15315), (82, 15321), (86, 15336), (90, 15360), (99, 15426),

Gene: PR_12 Start: 13970, Stop: 14491, Start Num: 26

Candidate Starts for PR_12:

(Start: 18 @13874 has 3 MA's), (20, 13907), (Start: 26 @13970 has 17 MA's), (34, 14006), (42, 14066), (57, 14153), (59, 14183), (71, 14243), (73, 14249), (74, 14252), (81, 14282), (82, 14288), (91, 14336), (92, 14348), (106, 14447), (107, 14456),

Gene: Phaedrus_17 Start: 14921, Stop: 15382, Start Num: 28

Candidate Starts for Phaedrus_17:

(12, 14657), (14, 14720), (16, 14798), (Start: 28 @14921 has 42 MA's), (Start: 31 @14936 has 4 MA's), (34, 14957), (49, 15065), (59, 15134), (71, 15194), (73, 15200), (81, 15233), (82, 15239), (86, 15254), (90, 15278), (99, 15344),

Gene: Phantasmagoria_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Phantasmagoria_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (64, 16463), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Phayeta_18 Start: 14879, Stop: 15340, Start Num: 28

Candidate Starts for Phayeta_18:

(1, 14267), (2, 14306), (5, 14462), (8, 14501), (12, 14615), (14, 14678), (16, 14756), (Start: 28 @14879 has 42 MA's), (Start: 31 @14894 has 4 MA's), (34, 14915), (49, 15023), (59, 15092), (71, 15152), (73, 15158), (81, 15191), (82, 15197), (86, 15212), (90, 15236), (99, 15302),

Gene: Philly_17 Start: 14869, Stop: 15330, Start Num: 28

Candidate Starts for Philly_17:

(12, 14605), (14, 14668), (16, 14746), (Start: 28 @14869 has 42 MA's), (Start: 31 @14884 has 4 MA's), (34, 14905), (49, 15013), (59, 15082), (71, 15142), (73, 15148), (81, 15181), (82, 15187), (90,

15226),

Gene: Phlyer_18 Start: 15753, Stop: 16199, Start Num: 31

Candidate Starts for Phlyer_18:

(Start: 31 @15753 has 4 MA's), (34, 15774), (49, 15882), (59, 15951), (71, 16011), (73, 16017), (81, 16050), (82, 16056), (86, 16071), (90, 16095), (99, 16161),

Gene: Pipefish_18 Start: 15887, Stop: 16348, Start Num: 28

Candidate Starts for Pipefish_18:

(1, 15275), (3, 15329), (5, 15470), (12, 15623), (14, 15686), (16, 15764), (Start: 28 @15887 has 42 MA's), (34, 15923), (49, 16031), (59, 16100), (71, 16160), (73, 16166), (81, 16199), (82, 16205), (86, 16220), (90, 16244), (99, 16310),

Gene: Pupper_83 Start: 32143, Stop: 32601, Start Num: 30

Candidate Starts for Pupper_83:

(Start: 30 @32143 has 4 MA's), (47, 32275), (49, 32290), (57, 32338), (61, 32374), (65, 32392), (70, 32428), (71, 32431), (77, 32458), (94, 32545),

Gene: Quesadilla_18 Start: 16370, Stop: 16834, Start Num: 23

Candidate Starts for Quesadilla_18:

(7, 15986), (Start: 23 @16370 has 2 MA's), (Start: 25 @16376 has 1 MA's), (35, 16427), (40, 16457), (46, 16496), (48, 16517), (60, 16595), (64, 16610), (71, 16652), (72, 16655), (81, 16691), (82, 16697), (84, 16703), (92, 16760), (94, 16772), (96, 16781), (99, 16805),

Gene: Qyrzula_17 Start: 16226, Stop: 16768, Start Num: 17

Candidate Starts for Qyrzula_17:

(Start: 17 @16226 has 30 MA's), (19, 16259), (24, 16319), (Start: 26 @16322 has 17 MA's), (41, 16406), (57, 16505), (58, 16532), (63, 16547), (64, 16553), (66, 16565), (72, 16598), (75, 16610), (81, 16634), (82, 16640), (87, 16661), (88, 16664), (92, 16700), (93, 16703), (98, 16730),

Gene: RagingRooster_18 Start: 15004, Stop: 15465, Start Num: 28

Candidate Starts for RagingRooster_18:

(12, 14740), (14, 14803), (16, 14881), (Start: 28 @15004 has 42 MA's), (Start: 31 @15019 has 4 MA's), (34, 15040), (49, 15148), (59, 15217), (71, 15277), (73, 15283), (81, 15316), (82, 15322), (86, 15337), (90, 15361), (99, 15427),

Gene: Rhinoforte_18 Start: 16253, Stop: 16795, Start Num: 17

Candidate Starts for Rhinoforte_18:

(Start: 17 @16253 has 30 MA's), (19, 16286), (Start: 26 @16349 has 17 MA's), (41, 16433), (57, 16532), (58, 16559), (63, 16574), (66, 16592), (72, 16625), (75, 16637), (81, 16661), (82, 16667), (87, 16688), (88, 16691), (92, 16727), (93, 16730), (98, 16757),

Gene: Rita1961_18 Start: 14999, Stop: 15460, Start Num: 28

Candidate Starts for Rita1961_18:

(12, 14735), (14, 14798), (16, 14876), (Start: 28 @14999 has 42 MA's), (Start: 31 @15014 has 4 MA's), (34, 15035), (49, 15143), (59, 15212), (71, 15272), (73, 15278), (81, 15311), (82, 15317), (86, 15332), (90, 15356), (99, 15422),

Gene: RomaT_18 Start: 15800, Stop: 16246, Start Num: 31

Candidate Starts for RomaT_18:

(Start: 31 @15800 has 4 MA's), (34, 15821), (49, 15929), (59, 15998), (71, 16058), (73, 16064), (81, 16097), (82, 16103), (86, 16118), (90, 16142), (99, 16208),

Gene: Rosebush_18 Start: 16253, Stop: 16795, Start Num: 17

Candidate Starts for Rosebush_18:

(Start: 17 @16253 has 30 MA's), (19, 16286), (Start: 26 @16349 has 17 MA's), (41, 16433), (57, 16532), (58, 16559), (63, 16574), (66, 16592), (72, 16625), (75, 16637), (81, 16661), (82, 16667), (87, 16688), (88, 16691), (92, 16727), (93, 16730), (98, 16757),

Gene: SCentae_81 Start: 31817, Stop: 32275, Start Num: 30

Candidate Starts for SCentae_81:

(Start: 30 @31817 has 4 MA's), (57, 32012), (61, 32048), (65, 32066), (77, 32132), (94, 32219),

Gene: Sabella_18 Start: 16139, Stop: 16681, Start Num: 17

Candidate Starts for Sabella_18:

(Start: 17 @16139 has 30 MA's), (19, 16172), (Start: 26 @16235 has 17 MA's), (41, 16319), (57, 16418), (58, 16445), (63, 16460), (66, 16478), (72, 16511), (75, 16523), (81, 16547), (82, 16553), (87, 16574), (88, 16577), (92, 16613), (93, 16616), (98, 16643),

Gene: Sejanus_14 Start: 13310, Stop: 13792, Start Num: 21

Candidate Starts for Sejanus_14:

(11, 13052), (12, 13091), (15, 13205), (Start: 21 @13310 has 4 MA's), (40, 13388), (44, 13415), (56, 13490), (57, 13493), (59, 13523), (81, 13622), (82, 13628), (83, 13631), (98, 13718), (99, 13733),

Gene: Shatter_15 Start: 13329, Stop: 13802, Start Num: 27

Candidate Starts for Shatter_15:

(12, 13077), (14, 13140), (16, 13218), (Start: 27 @13329 has 10 MA's), (41, 13413), (54, 13503), (55, 13518), (61, 13560), (77, 13641), (78, 13644), (82, 13659), (83, 13662), (95, 13734),

Gene: Sisko_15 Start: 13672, Stop: 14145, Start Num: 27

Candidate Starts for Sisko_15:

(9, 13342), (12, 13417), (14, 13480), (16, 13558), (Start: 27 @13672 has 10 MA's), (41, 13756), (54, 13846), (55, 13861), (63, 13909), (73, 13963), (82, 14002), (94, 14074), (102, 14134),

Gene: Skog_146 Start: 61230, Stop: 61688, Start Num: 30

Candidate Starts for Skog_146:

(29, 61227), (Start: 30 @61230 has 4 MA's), (42, 61329), (47, 61362), (57, 61425), (61, 61461), (65, 61479), (69, 61512), (80, 61554), (93, 61623), (96, 61641), (97, 61644), (98, 61650), (99, 61665),

Gene: SlippinJimmy_18 Start: 15768, Stop: 16229, Start Num: 28

Candidate Starts for SlippinJimmy_18:

(12, 15504), (14, 15567), (16, 15645), (Start: 28 @15768 has 42 MA's), (Start: 31 @15783 has 4 MA's), (34, 15804), (49, 15912), (59, 15981), (71, 16041), (73, 16047), (81, 16080), (82, 16086), (86, 16101), (90, 16125), (99, 16191),

Gene: Sour_18 Start: 15094, Stop: 15573, Start Num: 26

Candidate Starts for Sour_18:

(12, 14854), (14, 14917), (16, 14995), (Start: 26 @15094 has 17 MA's), (Start: 27 @15097 has 10 MA's), (32, 15127), (41, 15184), (55, 15289), (65, 15349), (66, 15355), (69, 15379), (78, 15415), (82, 15430), (95, 15505), (104, 15568),

Gene: SynergyX_18 Start: 15004, Stop: 15465, Start Num: 28

Candidate Starts for SynergyX_18:

(12, 14740), (14, 14803), (16, 14881), (Start: 28 @15004 has 42 MA's), (Start: 31 @15019 has 4 MA's), (34, 15040), (49, 15148), (59, 15217), (71, 15277), (73, 15283), (81, 15316), (82, 15322), (86, 15337), (90, 15361), (99, 15427),

Gene: TA17A_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for TA17A_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (24, 16229), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Taptic_12 Start: 13847, Stop: 14464, Start Num: 18

Candidate Starts for Taptic_12:

(Start: 18 @13847 has 3 MA's), (20, 13880), (Start: 26 @13943 has 17 MA's), (34, 13979), (42, 14039), (57, 14126), (59, 14156), (71, 14216), (73, 14222), (74, 14225), (81, 14255), (82, 14261), (91, 14309), (92, 14321), (103, 14402), (106, 14420), (107, 14429),

Gene: Tinciduntolum_19 Start: 16255, Stop: 16797, Start Num: 17

Candidate Starts for Tinciduntolum_19:

(Start: 17 @16255 has 30 MA's), (19, 16288), (Start: 26 @16351 has 17 MA's), (41, 16435), (57, 16534), (58, 16561), (63, 16576), (66, 16594), (72, 16627), (75, 16639), (81, 16663), (82, 16669), (87, 16690), (88, 16693), (92, 16729), (93, 16732), (98, 16759),

Gene: Tres_18 Start: 16136, Stop: 16678, Start Num: 17

Candidate Starts for Tres_18:

(Start: 17 @16136 has 30 MA's), (19, 16169), (Start: 26 @16232 has 17 MA's), (41, 16316), (57, 16415), (58, 16442), (63, 16457), (66, 16475), (72, 16508), (75, 16520), (81, 16544), (82, 16550), (87, 16571), (88, 16574), (92, 16610), (93, 16613), (98, 16640),

Gene: Tydolla_18 Start: 15741, Stop: 16202, Start Num: 28

Candidate Starts for Tydolla_18:

(12, 15477), (14, 15540), (16, 15618), (Start: 28 @15741 has 42 MA's), (Start: 31 @15756 has 4 MA's), (34, 15777), (49, 15885), (59, 15954), (71, 16014), (73, 16020), (81, 16053), (82, 16059), (86, 16074), (90, 16098), (99, 16164),

Gene: Vic9_19 Start: 16576, Stop: 17118, Start Num: 17

Candidate Starts for Vic9_19:

(Start: 17 @16576 has 30 MA's), (19, 16609), (24, 16669), (Start: 26 @16672 has 17 MA's), (41, 16756), (57, 16855), (58, 16882), (63, 16897), (64, 16903), (66, 16915), (72, 16948), (75, 16960), (81, 16984), (82, 16990), (87, 17011), (88, 17014), (92, 17050), (93, 17053), (98, 17080),

Gene: West99_18 Start: 16256, Stop: 16798, Start Num: 17

Candidate Starts for West99_18:

(Start: 17 @16256 has 30 MA's), (19, 16289), (Start: 26 @16352 has 17 MA's), (41, 16436), (57, 16535), (58, 16562), (63, 16577), (66, 16595), (72, 16628), (75, 16640), (81, 16664), (82, 16670), (87, 16691), (88, 16694), (92, 16730), (93, 16733), (98, 16760),

Gene: Wooper_17 Start: 14767, Stop: 15261, Start Num: 26

Candidate Starts for Wooper_17:

(12, 14536), (14, 14599), (16, 14677), (Start: 26 @14767 has 17 MA's), (38, 14839), (41, 14851), (46, 14884), (52, 14941), (58, 15001), (78, 15094), (82, 15109), (83, 15112), (89, 15145), (100, 15223), (102, 15250),

Gene: Yago84_15 Start: 13681, Stop: 14154, Start Num: 27

Candidate Starts for Yago84_15:

(9, 13351), (12, 13426), (14, 13489), (16, 13567), (Start: 27 @13681 has 10 MA's), (41, 13765), (54, 13855), (55, 13870), (63, 13918), (73, 13972), (82, 14011), (94, 14083), (102, 14143),

Gene: Yahalom_18 Start: 15015, Stop: 15476, Start Num: 28

Candidate Starts for Yahalom_18:

(1, 14403), (2, 14442), (5, 14598), (8, 14637), (12, 14751), (14, 14814), (16, 14892), (Start: 28 @15015 has 42 MA's), (Start: 31 @15030 has 4 MA's), (34, 15051), (49, 15159), (59, 15228), (71, 15288), (73, 15294), (81, 15327), (82, 15333), (86, 15348), (90, 15372), (99, 15438),

Gene: Yinz_18 Start: 15042, Stop: 15503, Start Num: 28

Candidate Starts for Yinz_18:

(12, 14778), (14, 14841), (16, 14919), (Start: 28 @15042 has 42 MA's), (Start: 31 @15057 has 4 MA's), (34, 15078), (49, 15186), (58, 15252), (59, 15255), (71, 15315), (73, 15321), (81, 15354), (82, 15360), (90, 15399), (99, 15465),

Gene: Zenteno07_20 Start: 14497, Stop: 14952, Start Num: 26

Candidate Starts for Zenteno07_20:

(Start: 26 @14497 has 17 MA's), (35, 14545), (41, 14581), (64, 14728), (72, 14773), (81, 14809), (82, 14815), (84, 14821), (88, 14839), (95, 14893), (96, 14899), (99, 14923),